

DETAILED ACTION

1. This Action is in response to the amendment filed 9/11/2009. Claims 1-3, 7-8, 10-29, 45, 47-61, 68-69, 109-110, 127-135, and 151 are pending and rejected.

Response to Amendments/Response to Arguments

2. The specification and claim objections are withdrawn in view of the amendment. The 35 USC 112, second paragraph rejection is withdrawn in view of the amendment. The 35 USC 101 rejection is withdrawn in view of the amendment.

Applicant's arguments regarding the prior art-based rejections were fully considered. The previous prior art rejections are withdrawn in view of at least the shifting of claim limitations. The new grounds of rejection are thus necessitated by the amendment.

Applicant argues the claims as amended on p. 14, last paragraph. Also, Applicant argues claim 127 as amended on pp. 15-16 of the Remarks.

Applicant further argues that the references do not disclose "where relationships...are identified as direct or indirect..." (Remarks, pp. 16-17). The examiner respectfully disagrees. The broadest reasonable interpretation has been applied to the claims. Brown teaches a direct relationship (e.g., one document pointing to another; fig. 2) and an indirect relationship (e.g., one document relating to another document in an ancestral relationship; col. 9, ll. 42-46).

Applicant's arguments on p. 17, 2nd complete paragraph are drawn to the claims as amended. However, Brown still teaches wherein relationships between two or more

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objects are grouped into categories selected from at least a physical and logical association. See fig. 13 (parent-child relationships are understood to read on at least a physical or a logical association).

Applicant's further arguments on p. 17 depend on the above discussion.

Applicant further argues on p. 18, 3rd and 4th complete paragraphs, that Kennedy does not disclose identifying capitalizations and patterns for words "because it is not required to eliminate the duplicate response to a query, which is the stated purpose of Kennedy." However, the Examiner recognizes that Kennedy is drawn to search and retrieval (e.g., fig. 4, #410), and moreover, Kennedy teaches the claimed subject matter. For at least these reasons, the combination of references, as detailed below is proper.

Applicant further argues that Brown does not teach re-computing an object network. However, it is noted that in Brown's iterative process, parents are found and provided for a group of initial documents in a network of objects (e.g., fig. 13, col. 16, ll. 15-30, figs. 3-5). This is understood to read on the claimed subject matter given the broadest reasonable interpretation.

For at least the above reasons, the same prior art references will be used.

Election/Restrictions

3. Applicant states in the Remarks (pp. 9, 13) that claim 110 is withdrawn, "in response to a restriction requirement with traverse." The claim status currently indicates that claim 110 is withdrawn. However, the Examiner recognizes that the restriction requirement was withdrawn in part (See MPEP 821.01), and claim 110 was

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rejoined. Applicant did not appear to address this issue in the Remarks, and Applicant did not appear to elect any claims without traverse. Applicant is reminded that the restriction requirement is final for the same reasons outlined in the prior actions. This Action will assume that Applicant did not intend to withdraw claim 110. As such, the claim will be considered in this Action. Applicant should clarify the status of claim 110.

Claims 30-34, 112, and 136-138 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 12/18/2008.

Claim Objections

4. Claim 110 is objected to because of the following informalities:

As to claim 110, the claim should recite a computer readable storage medium. This assumes that Applicant did not intend to withdraw claim 110, and claim 110 is pending.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-3, 7-8, 10-29, 45, 47-61, 68-69, 109, 127-135, and 151 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to

particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to all of the independent claims, limitation (d), “the identified relationship between direct and indirect links” lacks antecedent basis since relationships only need to be direct or indirect as per limitation (a).

Dependent claims depend from a rejected parent claim.

The broadest reasonable interpretation has been applied to the claims.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1-3, 7-8, 10-15, 17-29, 47-58, 109-110, and 151 are rejected under 35 USC 103(a) as being unpatentable over Brown et al. (US Patent 5,875,446), hereinafter “Brown,” in view of Kennedy et al. (US Patent 6,269,364), hereinafter “Kennedy.”

As to claim 1, Brown teaches the claimed subject matter including:

A source of data comprising one or more domains of information (e.g., figs. 2-5, col. 6, ll. 25-30);

An object relationship database comprising objects from the one or more domains of information (e.g., figs. 2-5, fig. 6-9 for the specific structure of database);

A processor (e.g., col. 6, ll. 10-25) linked to the ORD, wherein the processor executes a knowledge discovery engine (software) where relationships between two or

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more integrated objects within the ORD are (a) identified as direct or indirect relationships (e.g., col. 8, ll. 22-55, col. 9, ll. 42-48), retrieved, grouped into categories selected from the group consisting of positive effect, negative effect, physical association, and logical association (e.g., fig. 13; parent-child relationships are understood to read on at least a physical or a logical association; also see col. 13, ll. 49-51), ranked based on a relative strength of the identified relationship between direct and indirect objects (e.g., col. 15, ll. 20-40, fig. 8, col. 8, ll. 22-40), filtered, and numerically evaluated (Also see in general, figs. 10-13, at least cols. 12, l. 54 – col. 16, l. 34; col. 10, ll. 16-35, 65-67, col. 13, ll. 30-50, col. 14, ll. 24-26, col. 15, ll. 20-42, 65-67).

A user interface linked to the processor (e.g., fig. 13).

Brown does not expressly teach wherein each object comprises a noun, verb, adjective, adverb, phrase, sentence, symbol, or numeric character.

However, Brown is drawn to items such as books, articles, or reports that contain text (col. 6, ll. 25-30). Thus, such documents should comprise at least a noun, verb, adverb, phrase, or sentence, because books, articles, and reports should be written in a language.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Brown, to support a noun, verb, etc., as claimed. The motivation would have been to support a user's particular type of data and data access (e.g., using documents written in English), as known to one of ordinary skill in the art.

Brown does not expressly teach (filtering) by lexical processing.

However, Kennedy teaches filtering by lexical processing (e.g., col. 4, ll. 44-64, figs. 1, 4).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Brown, such that the objects are filtered by lexical processing. The motivation would have been to facilitate providing more relevant search results, as taught by Kennedy (e.g., col. 4, l. 64 - col. 5, l. 1), and as known to one of ordinary skill in the art.

As to claims 2 and 3, Brown as applied above further teaches wherein the source is one or more databases containing textual information or numerical information (e.g., see above, books, images, video, etc., col. 8, l. 19-21).

As to claim 7, Brown as applied above further teaches wherein the domains of information comprise parcels of data as information as text, symbol, numerals, and combinations thereof (e.g., see above, col. 6, ll. 25-30).

As to claim 8, Brown as applied above further teaches wherein the system is at least partially automated (e.g., see above, fig. 1).

As to claim 10, Brown as applied above further teaches wherein the object relationship database is created (see above). The patentability of a product in a product by process claim is based on the product itself. The structure implied by the process steps has been considered, and the process steps are understood not to impart any distinct structural characteristics to the final product. MPEP 2113. Also see below rejection.

As to claim 10, Brown as applied above does not expressly teach the database created using the claimed steps.

However, Kennedy teaches the claimed steps.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Brown, such that the database is created by the steps of Kennedy. The motivation would have been to facilitate a database with better accessibility, as known to one of ordinary skill in the art.

As to claim 11, Brown as applied above does not expressly teach a database of lexical variants from a data source.

However, Kennedy teaches a database of lexical variants from a data source (e.g., fig. 1, #155, fig. 3, see above).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Brown to have a database of lexical variants. The motivation would have been to facilitate processing of objects for increasing the relevancy of results (e.g., using synonyms), as taught by Kennedy (e.g., col. 4, l. 64 - col. 5, l. 1), and as known to one of ordinary skill in the art.

As to claim 12, the combination as applied above further teaches or suggests a program for scanning the database with the database of lexical variants to add synonyms (see e.g., Brown's database, and Kennedy, fig. 3).

As to claim 13, Kennedy as applied above further teaches or suggests a program for checking the object relationship database for errors (e.g., invalid database entry, see fig. 4, #480).

As to claim 14, Brown and Kennedy do not expressly teach the ORD created using the claimed steps.

However, Brown teaches a database and an object ID. Object ID's should be unique in order for the system to distinguish objects. Furthermore, a table should be a list of object ID's in increasing order to facilitate processing. Furthermore, Brown teaches adirectional relationships (see above, e.g., col. 8, ll. 40-45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Brown, such that the ORD is created with the claimed steps. The motivation would have been to facilitate processing data in a desired organization and order, as known to one of ordinary skill in the art.

As to claim 15, Brown as applied above further teaches wherein an object is retrieved from at least one of the claimed sources (see above).

As to claim 17, Brown as applied above does not expressly teach screening out common words.

However, Kennedy teaches screening out common words (e.g., fig. 4, #440, 450).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Brown, such that common words are screened. The motivation would have been to facilitate a cleaner database for processing, since common words are not significant for database searching, as known to one of ordinary skill in the art.

As to claim 18, Brown as applied above does not expressly teach identifying capitalizations and patterns for words by accessing a word database.

However, Kennedy teaches identifying capitalizations and patterns for words (e.g., synonyms, acronyms) by accessing a word database (e.g., fig. 3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Brown, capitalizations and patterns for words are found. The motivation would have been to facilitate data accessibility, search, and retrieval, as known to one of ordinary skill in the art and taught by Kennedy.

As to claims 19, 20, and 24, Brown as applied above does not expressly teach using a synonym database and an acronym resolving algorithm.

However, Kennedy teaches using a synonym database and an acronym resolving algorithm (e.g., see fig. 3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Brown, such that a synonym database and an acronym resolving algorithm are used. The motivation would have been to facilitate data accessibility, search, and retrieval, as known to one of ordinary skill in the art and taught by Kennedy.

As to claims 21-22, Brown as applied above further teaches a graphical user interface for displaying one or more objects, and wherein the interface comprise a control element which can be clicked to display the integrated object derived from the context of the source data (e.g., see above and fig. 13).

As to claims 14, 17-20, and 23-29, Brown as applied above further teaches wherein an Object Relationship Database is constructed (see above). These claims are drawn to the process of creating the database. The patentability of a product in a product by process claim is based on the product itself. The structure implied by the process steps has been considered, and the process steps are understood not to impart any distinct structural characteristics to the final product. MPEP 2113. Also see below rejection.

As to claim 23, Brown as applied above does not expressly teach wherein the ORD is constructed using the claimed method.

However, Brown teaches a block of text, a source of data, a record, and arrays. Thus, Brown suggests that an ORD could be constructed using the claimed method.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Brown and Kennedy, such that the ORD is constructed using the claimed method. The motivation would have been to conform to the user's requirements for creating a database.

As to claim 25, Brown as applied above does not expressly teach wherein the method further comprises parsing the record into sentences and parsing each sentence into words.

However, Kennedy strips response of common words, and processes the remaining words (e.g., fig. 4). Thus, Kennedy could parse records into sentences and the sentences into words, to achieve the individual words.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Brown. such that the claimed parsing is implemented. The motivation would have been to facilitate identifying the elements of the document, as taught throughout Kennedy and known to one of ordinary skill in the art.

As to claim 27, Brown as applied above further teaches or suggests wherein the block of text is selected from at least one of the items in the list (see above).

As to claim 29, Brown as applied above further teaches or suggests the claimed subject matter (e.g., see above, col. 15, ll. 20-25).

As to claim 47, Brown as applied above further teaches a computer readable storage medium for storing the object relationship database (see above; fig. 1).

As to claim 48, Brown as applied above further teaches a client/server architecture wherein at least two functions of the system are distributed in a server and at least one client computer connectable to the network (see above, fig. 1).

As to claim 49, Brown as applied above further teaches wherein the system comprises a program for accessing one or more data sources (see above).

As to claim 50, Brown as applied above further teaches wherein the object relationship database is dynamic, and adds new objects from the one or more data sources to the database (see above).

As to claim 51, Brown as applied above further teaches wherein the system recomputes an object network when new objects are added from the one or more data sources (e.g., see above, col. 8, l. 58 – col. 12, l. 52, fig. 13).

As to claim 52, Brown as applied above further teaches wherein the system further comprises an engine for monitoring re-computation results, and wherein the system re-evaluates relationships between objects (see above, note iterative/recursive process).

As to claim 53, the database is “downloadable” to the client computer as claimed because the database is data, and Brown teaches a network and a client computer transferring data.

As to claim 54, Brown as applied above further teaches wherein the database (network) is stored in memory of the server computer and the at least one client can access the database by communicating with the server (see above).

As to claim 55, Brown as applied above further teaches wherein the system further comprises a results and analysis database, wherein the results and analysis database comprises information relating to a query regarding an object relationship and results of the query (e.g., figs. 7, 13, see above).

As to claim 56, Brown as applied above further teaches wherein the results and analysis database further comprises a record comprising information relating to an interpretation of the results (e.g., see above, fig. 13, col. 16, ll. 13-30).

As to claim 57, Brown as applied above further teaches wherein the results and analysis database further comprises data validating the results (see above and fig. 13).

Claims 58, 109, 110, and 151 are rejected based on the same reasoning as one or more of the above claims.

7. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brown in view of Kennedy and Ellis et al (US 6,654,736), hereinafter “Ellis.”

As to claim 28, Brown and Kennedy as applied above does not expressly teach wherein the block of text is selected from the Physician’s Desk Reference.

However, Ellis teaches a block of text selected from the Physician’s Desk Reference (col. 4, ll. 1-5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Brown and Kennedy, such that the Physician’s Desk Reference can be accessed. The motivation would have been to add medical sources to be processed, thus increasing the applicability of the system, as known to one of ordinary skill in the art.

8. Claims 16, 26, 59-61, 68, and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown in view of Kennedy and Adamic et al. (US 2003/0186243), hereinafter “Adamic.”

As to claim 16, Brown and Kennedy as applied above do not expressly teach wherein the objects are at least one of the items in the claimed list.

However, Adamic teaches wherein the objects are at least one of the items in the claimed list (e.g., fig. 1, ¶¶ 0021-0022).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Brown and Kennedy, such that database objects comprise drug information as disclosed by Adamic. The motivation would have been to facilitate search and retrieval of medical information, thus enabling the combination to

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be applicable in a medical field, as known to one of ordinary skill in the art. Another motivation would have been to facilitate finding genes associated with diseases, as taught throughout Adamic.

As to claim 26, Brown and Kennedy as applied above teaches wherein information (in a database) comprises title (e.g., fig. 6A, #235), but does not expressly teach abstract, date, and PMID fields.

However, Adamic teaches all of title, abstract, date, and PMID fields (e.g., ¶¶ 0021-0022).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Brown and Kennedy, such that the information includes title, abstract, date, and PMID. The motivation would have been to facilitate having a complete record of an item for processing, as known to one of ordinary skill in the art, and seen in Adamic.

As to claim 59, Brown and Kennedy as applied above teaches ranking, but does not expressly teach generating a linear or nonlinear grouping of individual ranking factors.

However, Adamic teaches generating a linear or nonlinear grouping of individual ranking factors (e.g., fig. 4A, ¶¶ 0041-0049).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Brown and Kennedy, such that a linear or nonlinear grouping of individual ranking factors. The motivation would have been to facilitate probabilistic relevance calculations, as taught by Adamic (e.g., ¶ 0043).

As to claim 60, Adamic as applied above further teaches or suggests wherein each individual ranking factor is associated with a coefficient that weighs each term (see above).

As to claim 61, Adamic as applied above further teaches or suggests wherein weight is determined by at least one of the listed factors (see above).

As to claim 68, Adamic as applied above further teaches or suggests wherein the frequency of co-occurrences of objects within the data source is determined (e.g., see above and Fig. 4B).

As to claim 69, Brown and Kennedy as applied above do not expressly teach generating a comprehensive network of relationships to identify implicit relationships.

However, Adamic teaches or suggests wherein a knowledge discovery engine generates a comprehensive network of relationships to identify the implicit relationships and facilitate probabilistic relevance calculations (e.g., Adamic, see above, ¶¶ 0041-0049). Brown teaches a network of relationships (see above, figs. 2-5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Brown and Kennedy, such that generating a comprehensive network of relationships to identify implicit relationships is implemented. The motivation would have been to facilitate information search and retrieval, and facilitate probabilistic relevance calculations (e.g., Adamic, see above, ¶¶ 0041-0049), as taught throughout Adamic.

9. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brown in view of Kennedy and Hong et al (U.S. Patent 5,764,799), hereinafter “Hong.”

As to claim 45, Brown and Kennedy as applied above does not expressly teach a scanning module comprising a scanner for scanning printed information and generating a data source from the printed information.

However, Hong teaches a scanning module comprising a scanner for scanning printed information and generating a data source from the printed information (e.g., fig. 3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Brown and Kennedy, such that a scanning module as claimed is implemented. The motivation would have been to allow scanned information to be electronically searched, as known to one of ordinary skill in the art.

10. Claims 127-130, and 132-135 are rejected under 35 USC 103(e) as being unpatentable over Adamic in view of Brown and Kennedy.

As to claim 127, Adamic teaches a method comprising the steps of identifying one or more co-occurrences of objects within one or more topical sets in a domain of information, and evaluating the probability that one or more co-occurrences of objects represents a meaningful relationship within one or more topical sets (e.g., fig. 4B).

Adamic as applied above would further teach or suggest assigning an importance to each relationship based on the evaluated probability (¶¶ 0047-0049).

Adamic does not expressly teach an Object Relationship database comprising objects, wherein each object comprises a noun, verb, adjective, adverb, phrase, sentence, symbol, or numeric character, and using a system comprising the claimed limitations (processor...user interface).

However, Brown and Kennedy as applied above teaches or suggests an Object Relationship database comprising objects, wherein each object comprises a noun, verb, adjective, adverb, phrase, sentence, symbol, or numeric character, and using a system comprising the claimed limitations (processor...user interface). See above rejections.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Adamic with Brown and Kennedy as applied above, such that an object relationship database can be used and relations can be identified, retrieved, grouped, ranked, and filtered, and a user interface can be implemented, as claimed. The motivation would have been to provide a computing platform to process and present the data of Adamic, as known to one of ordinary skill in the art.

As to claim 128, Adamic as applied above further teaches wherein the importance is a function of the number of times two objects are co-mentioned within the topical set in the domain of information (e.g., see above, fig. 4A, ¶¶ 0052-0071).

As to claim 129, Adamic as applied above further teaches wherein the importance is a function of the textual distance between two objects (e.g., see fig. 3).

As to claim 130, Adamic as applied above teaches the importance based on relevance (e.g., ¶ 0052).

As to claim 132, Adamic as applied above further teaches wherein a natural language processing engine is used to identify one or more co-occurrences of objects (e.g., from articles, ¶¶ 0021-0022).

As to claim 133, Adamic as applied above further teaches wherein contextual information within the topical set is used to assign importance (e.g., leukemia and MLL documents in a set of medical documents, ¶¶ 0041-0049).

As to claim 134, Adamic as applied above further teaches wherein contextual information within the topical set is used to assign a nature to the relationship (e.g., strength of relationship, ¶ 0047).

As to claim 135, Adamic as applied above further teaches wherein importance is veracity (see e.g., fig. 4B, ¶¶ 0052 – 0071).

11. Claim 131 is rejected under 35 U.S.C. 103(a) as being unpatentable over Adamic in view of Brown, Kennedy, and Deligne et al (US 6,314,399), hereinafter “Deligne.”

As to claim 131, Adamic, Brown, and Kennedy as applied above teaches importance, but does not expressly teach evaluation of one or more co-occurrence patterns over time.

However, Deligne teaches evaluation of one or more co-occurrence patterns over time (e.g., col. 7, l. 45 – col. 8, l. 14).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Adamic, Brown, and Kennedy, such that one or more co-occurrence patterns over time are evaluated. The motivation would have been

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to reduce processing complexity for high speed processing of expected number of co-occurrences of a sequence, as taught by Deligne (e.g., col. 7, ll. 45-60; col. 3, ll. 11-15).

Conclusion

12. Applicant's amendment necessitates new grounds of rejection. Applicant's arguments were fully considered but were not persuasive. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles E. Lu whose telephone number is (571) 272-8594. The examiner can normally be reached on 8:30 - 5:00; M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Apu Mofiz can be reached at (571) 272-4080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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